

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An apparatus comprising:

a substrate;

a voltage regulator converter, the voltage regulator converter comprising N ($N > 1$) phases; and, each of the N phases located in a respective one of N areas of the substrate; and

a voltage regulator controller coupled to the voltage regulator converter,

wherein a first one of the N phases is to generate more heat than a second one of the N phases, and

wherein a first area of the substrate in which the first one of the N phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N phases is located.

~~a voltage regulator controller coupled to the voltage regulator converter and to control a first one of the N phases of the voltage regulator converter to output a first current and to control a second one of the N phases to output a second current,~~

~~wherein the first output current is different from the second output current.~~

2. (original) An apparatus according to Claim 1, further comprising:

N feedback circuits, each of the N feedback circuits coupled to the voltage regulator controller and to one of the N phases, wherein one or more electrical elements of one of the N feedback circuits exhibits an electrical value that is different from an electrical value exhibited by a corresponding one or more electrical elements of another one of the N feedback circuits.

3. (original) An apparatus according to Claim 2, wherein the one or more electrical elements of the one of the N feedback circuits comprises a first resistor, wherein the one or more

electrical elements of the another one of the N feedback circuits comprises a second resistor, and wherein a resistance value associated with the first resistor is different from a resistance value associated with the second resistor.

4. (original) An apparatus according to Claim 3, wherein the first resistor and the second resistor comprise current-sensing resistors.

5. (currently amended) An apparatus according to Claim 1, further comprising:

N feedback circuits, each of the N feedback circuits coupled to the voltage regulator controller and to one of the N phases,

wherein the voltage regulator controller is to sense a first sensed current value from a first of the N feedback circuits coupled to the first one of the N phases in response to ~~the~~ a first current,

wherein the voltage regulator controller is to sense a second sensed current value from a second of the N feedback circuits coupled to the second one of the N phases in response to ~~the~~ a second current, and

wherein the first sensed current value and the second sensed current value are substantially identical.

6. (original) An apparatus according to Claim 5,

wherein the first of the N feedback circuits comprises a first current sensing resistor,

wherein the second of the N feedback circuits comprises a second current sensing resistor, and

wherein a resistance value associated with the first current sensing resistor is different from a resistance value associated with the second current sensing resistor.

7. (currently amended) An apparatus according to Claim 5, wherein ~~the first one of the N phases is located in a more thermally sensitive area than the second one of the N phases, and wherein the first current is less than the second current.~~

8. (cancelled)

9. (cancelled)

10. (currently amended) A method comprising:

controlling a first one of N phases of a voltage regulator converter to output a first current; and

controlling a second one of the N phases to output a second current,

wherein the first one of the N phases is to generate more heat than the second one of the N phases, and

wherein a first area of a substrate in which the first one of the N phases is located is less thermally-sensitive than the second area of the substrate in which the second one of the N phases is located.

~~wherein the first output current is different from the second output current.~~

11. (previously presented) A method according to Claim 10, further comprising:

sensing a third current from a first current sensing resistor of a first feedback circuit coupled to the first one of the N phases; and

sensing a fourth current from a second current sensing resistor of a second feedback circuit coupled to the second one of the N phases,

wherein the third current is substantially identical to the fourth current.

12. (original) A method according to Claim 11,

wherein a resistance value associated with the first current sensing resistor is different from a resistance value associated with the second current sensing resistor.

13. (currently amended) A method according to Claim 10, wherein ~~the first phase is located in a more thermally sensitive area than the second phase, and wherein the third current is less than the fourth current.~~

14. (cancelled)

15. (currently amended) A system comprising:

a microprocessor;

a motherboard coupled to the microprocessor;

a double data rate memory coupled to the microprocessor; and

a voltage regulator coupled to the motherboard to provide a voltage to the microprocessor, the voltage regulator comprising:

a voltage regulator converter, the voltage regulator converter comprising N ($N > 1$) phases, each of the N phases located in a respective one of N areas of the substrate; and

a voltage regulator controller coupled to the voltage regulator converter ~~and to control the voltage regulator converter to generate a first current within a first one of the N phases and to generate a second current within a second one of the N phases,~~

wherein a first one of the N phases is to generate more heat than a second one of the N phases, and

wherein a first area of the substrate in which the first one of the N phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N phases is located

~~wherein the first current is different from the second current.~~

16. (original) A system according to Claim 15, further comprising:

N feedback circuits, each of the N feedback circuits coupled to the voltage regulator controller and to one of the N phases, wherein one or more electrical elements of one of the N feedback circuits exhibits an electrical value that is different from an electrical value exhibited by a corresponding one or more electrical elements of another one of the N feedback circuits.

17. (original) A system according to Claim 16, wherein the one or more electrical elements of the one of the N feedback circuits comprises a first resistor, wherein the one or more electrical elements of the another one of the N feedback circuits comprises a second resistor, and wherein a resistance value associated with the first resistor is different from a resistance value associated with the second resistor.

18. (currently amended) A system according to Claim 15, further comprising:

N feedback circuits, each of the N feedback circuits coupled to the voltage regulator controller and to one of the N phases,

wherein the voltage regulator controller is to sense a first sensed current value from a first of the N feedback circuits coupled to the first one of the N phases in response to ~~the~~ a first current,

wherein the voltage regulator controller is to sense a second sensed current value from a second of the N feedback circuits coupled to the second one of the N phases in response to ~~the~~ a second current, and

wherein the first sensed current value and the second sensed current value are substantially identical.

19. (original) A system according to Claim 18,

wherein the first of the N feedback circuits comprises a first current sensing resistor,
wherein the second of the N feedback circuits comprises a second current sensing resistor, and

wherein a resistance value associated with the first current sensing resistor is different from a resistance value associated with the second current sensing resistor.

20. – 21. (cancelled)